

New Jersey Department of Transportation

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Baseline Document Change Announcement

ANNOUNCEMENT: BDC18S-09

DATE: December 20, 2018

SUBJECT: Modular Bridge Joint System
 - **Revision to the 2007 Standard Specifications for Road and Bridge Construction, Subparts 507.03.01 and 914.04.03.**

Subparts 507.03.01 and 914.04.03 of the 2007 Standard Specifications for Road and Bridge Construction have been revised to be consistent with the AASHTO LRFD Bridge Construction Specifications. Also, clarify and update the requirements of AASHTO/ASTM materials, details, prequalification tests, and installation of MBJS.

The following revisions have been incorporated into the Standard Inputs (SI 2007).

507.03.01 Joint Assemblies

A. Working Drawings

THE SECOND PARAGRAPH IS CHANGED TO:

In addition, for modular expansion joint systems, incorporate the following requirements:

1. Provide the expansion joint system to accommodate all expected longitudinal movements as well as vertical and horizontal rotations. Incorporate strip seal glands with a maximum movement range of 3.15 inches per seal. Support each separation/center beam with an independent support bar that is welded to the separation beam. Suspend the support bars over the joint opening by sliding elastomeric bearings. Incorporate an equidistant control system that develops its maximum compressive force when the joint is at its maximum opening. Do not use bolted connections between the separator beams and support bars unless approved by the Designer. If bolted connections are approved, lock them into position after tightening. Provide tightening procedure for Designer's approval to ensure all bolts cannot loosen during the service life.
2. Provide continuous separation/center beams without any field splice unless approved by the Designer. If a field splice is inevitable due to a manufacturing constraint, provide a fatigue resistant field splice (welded or bolted, and located away from potential wheel paths) and installation procedure. Installation is to be supervised by the Manufacturer and Contractor. If bolted connections are used, provide a bolt tightening procedure and ensure bolt loosening does not happen during service life. However, provide continuous strip seals even if separate/center beams are spliced.
3. Fatigue design the modular joint system according to Section 14 of the AASHTO LRFD Bridge Design Specifications. Fatigue test the modular joint system, including the transverse separation/center beams, support bars, and other structural elements and connections, according to Section 19/A19 of AASHTO LRFD Construction Specifications.

4. Perform prequalification tests, Open Movement and Vibration (OMV) testing and Seal Pushout (SPO) testing as specified in 914.04.03 for review and approval by the Designer.
5. Provide the elastomeric springs and bearings to be removable and replaceable in the event maintenance is necessary.

914.04.03 Modular Joints

THE ENTIRE SUBPART IS CHANGED TO:

A. Manufacturer. Manufacturer is to be AISC certified for “Bridge and Highway Components (CPT)”, have a minimum of 3 years experience in Modular Bridge Joint System (MBJS) fabrication, and completed fatigue testing of the designed structural elements and connections or splice details per AASHTO LRFD Construction Specifications.

B. Materials. Use materials that conform to the following requirements:

1. Use structural steel conforming to the requirements of AASHTO M 270M/M 270 (ASTM A709/A709M), Grade 50, or Grade 50W with Zone 2 CVN requirements. Do not use aluminum components.
2. Use stainless steel conforming to ASTM A240/A240M, Type 304.
3. Use PTFE that is 100 percent virgin material, woven PTFE fabric, or dimpled PTFE conforming to the material requirements in Section 18 of the AASHTO LRFD Bridge Design Specifications, and Section 19 of AASHTO LRFD Bridge Construction Specifications.
4. Use neoprene strip seals conforming to the requirements in Table 914.06-1 and that have a maximum movement range of 3.15 inches per seal. Provide water tightness of strip seals at connection to steel beams and field splice(s). Do not use box seals or seals utilizing double webs.

Table 914.06-1 Tests for Neoprene Strip Seals

Property	Test Method	Requirement
Tensile strength, minimum psi	ASTM D 412	2000
Elongation at break, minimum %	ASTM D 412	250
Hardness, Type A durometer	ASTM D 2240	55 to 70
Compression Set at 72 hr at 212 °F, maximum %	ASTM D 395	40

5. Use bolts and other hardware conforming to the requirements of AASHTO M 164 (ASTM F3125/F3125M Grade A325) and galvanized according to AASHTO M232 (ASTM A153/A153M) or ASTM B695.
6. Fabricate slide bearings and precompressed springs as steel reinforced elastomeric pads with a PTFE sliding surface. Do not manufacture components from polyurethane compounds.

Perform prequalification tests, Open Movement and Vibration (OMV) testing and Seal Pushout (SPO) testing, according to AASHTO LRFD Construction Specifications Section 19/A19 and provide testing report.

C. Fabrication. Fabricate the structural steel components of the modular joint assembly as specified in 906.04 and according to AWS D1.5 and as shown on the Plans and approved working drawings. Hot-dip galvanize the assembly according to AASHTO M111 (ASTM A123/A123M).

Perform field splices according to the details and procedures included in the approved working drawings.

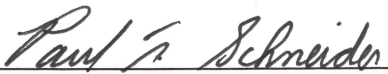
D. Shipping, Handling, and Certification. The RE will reject joint systems damaged during shipping or handling. The Contractor may repair minor damage to the galvanizing according to ASTM A780/A780M. Store the expansion joint system according to the manufacturer’s recommendations.

Submit a certification of compliance, as specified in 106.07, for the modular joint assembly. With the certification, submit test results for neoprene strip seal and mill certifications for the structural steel components.

Implementation Code R (ROUTINE)

Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

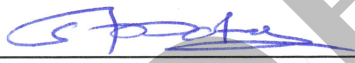
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